Rymer, Edwina

From: Overbay, Michael
Sent: Monday, August 25, 2014 4:23 PM
To: Johnson, Ken-E
Cc: Dellinger, Philip;Frazier, Mike;Dorsey, Nancy;Graves, Brian
Subject: RE: RRC proposed rule on induced seismicity

Ken, that was very fast! I have no answers for you right now. We may want to set up a call with Craig Pearson at the RRC to discuss these questions before we go forward with a set of formal comments.

From: Johnson, Ken-E
Sent: Monday, August 25, 2014 4:08 PM
To: Overbay, Michael
Cc: Dellinger, Philip; Frazier, Mike; Dorsey, Nancy; Graves, Brian
Subject: RE: RRC proposed rule on induced seismicity

Mike - As I read this, on Page 1 they seem to want the pressure front calculated to project the area mapped. It is difficult to reliably calculate (they say estimated) the pressure front without: (1) an in situ measurement of transmissibility (generally a falloff test), (2) a static pressure measurement, and (3)determination of critical pressure rise based on assumed worst case AP conditions. The pressure front determination is mentioned again on Page 9 as reg 3.9(3)(A) but there no explicit detail about what is required to do this.

Given the issues with getting reliable pressure front "estimation" which has been discussed in past years, this would seem to need much more detail about how it is to be done. Also, if the pressure front is not realistically estimated, the search area for seismic events might be very small and, given the uncertainties in the USGS event locations, this may be an approach of limited utility. The quality of the data used to determine the pressure front size determines, to some degree, how useful the reg change may be.

On two positive notes, the requirements for additional geological information on Page 9 as reg 3.9(3)(C) and on Page 11 as well as possible increased operations monitoring on Page 10 as reg 3.9(11)(A) and (B) appear to be useful changes, but may be limited based on the pressure front issues previously mention. Also on Page 4, it is mentioned that the proposed rule requirements clarify that the Commission can require increased reporting of injection volume in certain very limited circumstances. I would say require increased reporting of **both** injection volume and pressure and I would expect that whenever there is increased or new seismicity around areas with multiple disposal wells, that this would approach would be routinely used as opposed to limited circumstances on multiple disposal wells. I would also want reliable current static pressure measurements in these situations.

On Page 12, the terms "suspected" or "shown to be causing seismic activity" are listed in the reg wording. Is there any clarification of what suspected means or how a well can be show to be causal?

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From: Overbay, Michael
Sent: Monday, August 25, 2014 3:23 PM
To: Dorsey, Nancy; Johnson, Ken-E; Frazier, Mike
Cc: Dellinger, Philip; Brown, Jamesr
Subject: RRC proposed rule on induced seismicity

Hi Nancy, Ken and Mike,

During Jim and Bill H's visit to the RRC last week, they discussed the RRC's proposed rules that will allow them to respond to induced seismic events related to Class II injection wells. The RRC indicated they would like to have our comments, so we have been tasked with reviewing their proposal. I have attached the file, which is 16 pages. If you could complete your review and send me your comments by COB Monday, September 8th (two weeks from now), that would give us plenty of time to brief up the chain and finalize them before the end of the public comment period on September 29th.

Thanks,

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